

Exhibit 11

<https://techcommunity.microsoft.com/t5/educator-developer-blog/the-history-of-microsoft-azure/ba-p/3574204>

EDUCATOR DEVELOPER BLOG 5 MIN READ

The History of Microsoft Azure



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Hello! Welcome to my first article on **Azure**, this article is a reminder of the growth and maturity Microsoft Azure which finally made it as a top cloud service provider. My name is [Roosevelt Abandy](#) I am a Gold [Microsoft Learn Student Ambassador](#), Software Engineer, Power Platform Advocate and a student at the [University of Benin, Nigeria](#). As a Co-Lead of the [Microsoft Power Platform User Group Edo state](#), I have trained over 400+ individuals and brought awareness to Microsoft technologies through Microsoft Learn Student Ambassador led bootcamps, events and competitions. Familiarized myself with programming languages which include C#, Python, JavaScript, and Java amongst others in my academic coursework, personal projects, and competitions.

A brief history on the Microsoft Azure

[Microsoft Azure](#) was first announced October 28, 2008. A cloud computing operating system which was targeted at Business and Developers without additional coding. The original name Windows Azure was a deliberate response in competition to the Amazon EC2 and Google App Engine. Windows Azure was built from as an extension of the Windows NT which was the beginning of Microsoft Cloud Platform as a Service (PaaS). The Windows Azure was an internal project which went by the code name "**Project Red Dog**".

The First-Generation Services

The First Era of the Windows Azure started with a limited number of services that formed the forte of the cloud service. The major service which it was launched for enabled developers to run the ASP.NET web applications and APIs, the other piece designed along with the Azure service was running long process with no User Interface (UI) for worker roles.

After a year the Windows Azure was released, the announcement of the SQL Azure relational database and support for other programming languages like Java, PHP, and some micro related services made them ready to transform their services into a Giant.

Windows Azure became commercially available in the early year of 2010 as more services were added. One of the many add was the popular .NET Framework 4 which supported the Microsoft SQL Server. Also, some worthy services added mentions are OS Versioning, Content Delivery Network (CDN) used to cache static assets of websites geographically to users to increase performance and the Microsoft Azure Service Bus used to connect on-premises applications, cloud applications and Azure's own services.

The Second-Generation Services

Developers started adopting Open-Source Software (OSS) because it was cheaper which increased the usage of software like Linux VM and some OSS packages like MySQL, PHP and Apache. Infrastructure as a Service (IaaS) was evidently the best approach to give customers the best control over the cloud, Amazon on the other hand "Amazon EC2" was growing rapidly as it even had its own Linux version. This made Microsoft re-strategies on their cloud service operations on the Windows Azure. After a reform of their strategies, they were able to revolutionize the Windows Azure by first renaming their cloud to "Microsoft Azure" and making the new Microsoft Azure the best place ever to run the Linux Operating system which also meant that the full operations from bottom to top was transform from PaaS to IaaS.

The Third-Generation Services

The Era of big data, analytics and Internet of Things (IoT) came stay, company giant like Amazon were pushing EMR. Amazon EMR is a cloud big data platform for running large-scale distributed data processing jobs, interactive SQL queries, and machine learning (ML) applications using open-source analytics frameworks such as Apache Spark, Apache Hive, and Presto. Another company giant Google pushed BigQuery as the data warehouse in the cloud. Microsoft on the other hand took aggressive measures partnering with **Hortonworks** to offer Azure HDInsight, a managed Apache Hadoop service in Microsoft's cloud. Microsoft also launched the Azure Data Lake Store and Azure Data Lake Analytics to provide an end-to-end Big Data and analytics platform on Azure. Microsoft will later go on to acquire **Revolution Analytics** to make the popular R language native to Azure data platform. Microsoft also foresaw the Internet of Things (IoT) as a worthy service to leverage on which they invested.

Microsoft Azure is among the first clouds service providers to have an end-to-end connected devices stack powered by Event Hub, IoT Hub, Stream Analytics, SQL Database and Power BI. As we all know currently that Microsoft is the only company to offer the core building blocks of IoT (PaaS) and a white-labelled, multi-tenant, ready-to-use IoT SaaS offering branded as Azure IoT Central.

The Fourth-Generation Service

Microsoft became the leading giant for cloud service operations, a good effort from the team to keep the giant goals aligned but this marks the start of how the cloud service providers will thrive to keep customers happy especially Microsoft. Apart from OSS and OSS packages, big data and IoT, software and the cloud began to drift towards intelligence. Microsoft as a leading cloud service providers ventured very early into Machine Learning and Artificial Intelligence. Microsoft Azure was among the first public cloud providers to offer a visual designer for training and deploying Machine Learning Models named Azure ML Studio. Azure ML Services will go on to support deep learning models, NVIDIA GPU, Intel FPGA, enhanced pipelines, Machine Learning Operations (MLOps), and even a drag and drop designer for training neural networks.

The partnership with other big giants like Intel, NVIDIA and Qualcomm to make Azure IoT edge the best platform to work with Artificial Intelligence (AI) models, also the investment in databases, Big Data, AI, IoT not only kept the vision of Intelligent Cloud and Intelligent edge, but it also made Microsoft Azure platform for housing rich cloud service which will in return set the standards for running compute, storage and analytics at the edge.

The present and Beyond

The adoption of Kubernetes which changed the way the cloud operating is done, force Microsoft to take advantage of the trend by launching the **Azure Arc** which enables customers to manage Virtual Machines (VMs), physical or on-premises machines and other workloads managed by Kubernetes from a single control plane. The Azure Arc have an edge over its competitors because it brings legacy and modern workloads to a level playing field.

Furthermore, Azure currently offers over 600 services there is no worthy explanation to give credit to the vision and approach by Microsoft to change to dynamic of Azure and the Cloud service platform in the industry. Microsoft Azure provides a combination of different technology services like Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) which make the customer relationship friendly.

Learn More about Microsoft Services

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Certifications

Microsoft has raised the standard for cloud operations above the bar and it is no surprise that the Microsoft Azure has become a sophisticated platform for businesses and developers. Azure Certification give some balancing to which the Azure Services is kept in check. Certifications include:

- [Azure Fundamentals](#)
- [Azure Developer Associate](#)
- [Azure Administrator Associate](#)
- [Azure Data Engineers Associate](#)
- [Azure Security Engineer Associate](#)
- [Azure Solutions Architect Expert](#)
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